Appl. No. : 10/719,419
Filed : November 21, 2003

AMENDMENTS TO THE CLAIMS

Claims 2, 6-9, 11, 19, 23, and 24 remain as originally filed. Please amend Claims 1, 3-5, 10, 12-18, 20-22, and 25 as follows:

1. (Currently amended) A method of magnetically shielding a semiconductor die, comprising:

forming a molded housing around the semiconductor die; and

applying a preformed film of magnetic shield material to at least one outer surface of the molded housing, the preformed film being approximately parallel to a major surface of the semiconductor die.

2. (Original) The method of Claim 1, wherein forming a molded housing comprises encapsulating a plurality of semiconductor dies.

3. (Currently amended) The method of Claim 1, wherein the at least one outer surface of the molded housing comprises a recessed region, into which region the preformed film of magnetic shield material is applied.

4. (Currently amended) The method of Claim 3, wherein applying comprises fitting the preformed film within the recessed region under an overhang along at least a portion of a perimeter of the recessed region.

5. (Currently amended) The method of Claim 1, wherein applying the preformed film of magnetic shield material to at least one outer surface of the molded housing comprises applying the preformed film to both a top outer surface and a bottom outer surface of the molded housing.

6. (Original) The method of Claim 1, wherein the semiconductor die is attached to a plastic substrate before the molded housing is formed, and the molded housing encapsulates the semiconductor die on the plastic substrate.

7. (Original) The method of Claim 6, wherein the plastic substrate comprises a ball grid array substrate.

8. (Original) The method of Claim 6, further comprising bonding wires between the semiconductor die and electrical traces on the plastic substrate after the semiconductor die is attached to the plastic substrate and before forming the molded housing.

9. (Original) The method of Claim 6, further comprising bonding solder bumps on the semiconductor die to electrical traces on the plastic substrate before forming the molded housing.

10. (Currently amended) The method of Claim 1, wherein applying the preformed film of magnetic shield material to at least one outer surface of the molded housing comprises attaching the preformed film to the molded housing with an epoxy-based adhesive.

11. (Original) The method of Claim 1, wherein the magnetic shield material is selected from the group consisting of mu metal and permalloy.

12. (Currently amended) The method of Claim 1, wherein applying the preformed film of magnetic shield material is conducted after all high temperature processing.

13. (Currently amended) The method of Claim 1, further comprising degaussing the preformed film of magnetic shield material before applying the preformed film to the at least one outer surface of the molded housing.

14. (Currently amended) The method of Claim 13, further comprising removing the preformed film of magnetic material from the outer surface of the molded housing before degaussing and re-applying the preformed film.

15. (Currently amended) The method of Claim 1, wherein forming the molded housing further comprises forming the molding housing with a recess including overhanging tabs such that applying the preformed film of magnetic shield material further comprises using the overhanging tabs to mechanically retain the magnetic shield material within the recess.

16. (Currently amended) The method of Claim 1, wherein forming the molded housing further comprises forming a recess in the molded housing that mechanically retains the preformed film of magnetic shield material.

17. (Currently amended) The method of Claim 1, wherein applying the preformed film of magnetic shield material further comprises retaining the preformed film of magnetic shield material within a recess formed in the molded housing.

18. (Currently amended) The method of Claim 1, wherein applying the preformed film of magnetic shield material further comprises removably trapping the preformed film of magnetic shield material within a recess formed in the molded housing.

19. (Original) The method of Claim 1, wherein forming the molded housing further comprises forming a unitary molded housing.

20. (Currently amended) A method of packaging an integrated circuit chip, comprising:

mounting the chip on a die carrier;

molding epoxy over the chip to form an encapsulant;

selecting a preformed magnetic shield layer so that a thickness of the preformed magnetic shield layer is tailored to a strength of an external magnetic field of an intended environment; and

applying the selected preformed magnetic shield layer over the encapsulant.

21. (Currently amended) The method of Claim 20, further comprising forming a recess in a major surface of the encapsulant, wherein applying comprises fitting the selected preformed magnetic shield layer within the recess.

22. (Currently amended) The method of Claim 21, further comprising removing the selected preformed magnetic shield layer from the recess, conducting high temperature processing upon the packaged chip while the preformed magnetic shield layer is removed, and replacing the magnetic shield layer after high temperature processing.

23. (Original) The method of Claim 22, further comprising applying a strong magnetic field to the packaged chip during the high temperature processing.

24. (Original) The method of Claim 20, wherein applying comprises adhering.

25. (Currently amended) The method of Claim 20, wherein molding epoxy further comprises:

forming a recess including overhanging tabs in a major surface of the encapsulant; and

wherein applying the selected preformed magnetic shield layer further comprises removably trapping the preformed magnetic shield layer with the overhanging tabs.